



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AMENDMENT

APPLICANT(S): Takayuki Gomi et al. OLD DOCKET NO.: P97,2608
NEW DOCKET NO.: 09792909-3746
SERIAL NO.: 08/965,286 GROUP ART UNIT: 2811
DATE FILED: November 6, 1997 EXAMINER: O. Nadav
INVENTION: "BIPOLAR TRANSISTOR AND METHOD OF THE SAME"

Hon. Assistant Commissioner for Patents
Washington, DC 20231

S I R:

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This amendment is filed in response to the Office Action of July 25, 2000. Please reconsider the application in view of the amendment and remarks presented below.

IN THE CLAIMS

Please amend claims 1 and 17 as follows:

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1. (Amended) A semiconductor device comprising a first vertical type [high speed NPN] bipolar transistor and a second vertical type [high voltage NPN] bipolar transistor whose voltage is different from that of said first vertical type bipolar transistor formed on a semiconductor substrate made by forming an epitaxial layer on a silicon substrate [having a breakdown voltage which is higher than a breakdown voltage of said first vertical type high speed NPN bipolar transistor, the device including an epitaxial layer formed on a silicon substrate], wherein said first vertical type [high speed NPN] bipolar transistor has a first embedded diffusion layer formed in an upper part of said silicon substrate[, said first embedded diffusion layer having a same conductive type as said epitaxial layer] and having an impurity concentration higher than that of said epitaxial layer, said second vertical type [high voltage NPN] bipolar transistor having a second embedded diffusion layer formed in an upper part of said silicon substrate and of the same conductive type as said epitaxial layer, [said second embedded diffusion layer having a same conductive type as said epitaxial layer and having an impurity concentration which is both less than the impurity concentration of said first embedded diffusion layer and at least as high as the impurity concentration of said epitaxial layer, said second embedded diffusion layer having a depth which is greater than a depth of said first embedded diffusion layer, wherein said second embedded diffusion layer is a terminal of said second vertical type high voltage NPN bipolar transistor] wherein an impurity concentration of said second embedded diffusion layer is less than the impurity concentration of said first embedded diffusion layer and is approximately equal to